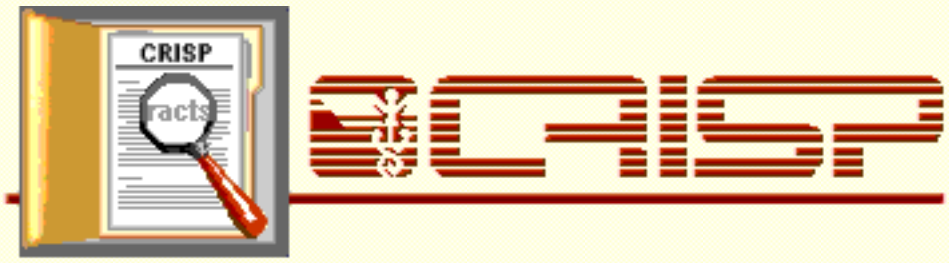
Version 2.0



Abstract

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Grant Number: 5R01NR004129-05

PI Name: LARSON, JANET L.

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PI Title: PROFESSOR AND DEPARTMENT HEAD

Project Title: NURSING MODEL--RESPIRATORY MUSCLE STRENGTH IN COPD

Abstract: *Patients with chronic obstructive pulmonary disease (COPD) demonstrate a reduced functional strength of the inspiratory muscles which places them at risk for the development of respiratory muscle fatigue and ventilatory failure and contributes to sensations of dyspnea and ultimately to a decrease in functional performance. This study will be a longitudinal study with 10 years of follow-up, but the work described here covers the first five years of the study and reflects the first 3 years of follow-up. The specific aims of this study are: (1) to describe the deterioration in inspiratory muscle strength over the natural course of the disease, (2) to examine the relationship between deterioration inspiratory muscle strength, hyperinflation of the chest and loss of muscle mass, (3) to describe the outcomes of deterioration in inspiratory muscle strength with respect to dyspnea and functional performance and (4) to describe the long-term effects of exacerbations with respect to inspiratory muscle strength, peripheral muscle strength and muscle mass. This study will include 100 patients with moderate to severe COPD and 50 healthy subjects. All variables will be measured four times, at baseline and annually for three years. A subset of variables will be measured after recovery from each exacerbation and/or respiratory tract infection (RTI). Major variables include: (l) inspiratory muscle strength measured as the maximal inspiratory pressure, (2) hyperinflation defined as the ratio of the residual volume to total lung capacity, (3) body composition measured with dual energy x-ray absorptiometry, skinfold thicknesses and mid-arm muscle area, (4) peripheral muscle strength of the knee flexors/extensors and hand grip, (5) dyspnea with the Chronic Respiratory Disease Questionnaire, (6) functional performance with the 12 minute distance walk, Functional Performance Inventory and the Sickness Impact Profile.*

The first four variables will be measured after recovery from each exacerbation/RTI. Data will be analyzed with descriptive statistics and repeated measures ANOVA.

Thesaurus Terms:
chronic obstructive pulmonary disease, muscle strength, nursing model, outcomes research, respiratory muscle
body composition, dyspnea, functional ability, longitudinal human study, model design /development, respiratory airflow measurement, respiratory gas, respiratory infection clinical research, human subject, photon absorptiometry

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Fiscal Year:	2001
Department:	MEDICAL-SURGICAL NURSING
Project Start:	10-FEB-1997
Project End:	31-JAN-2003
ICD:	NATIONAL INSTITUTE OF NURSING RESEARCH
IRG:	NURS